

# HP NetServer LH4 with XP256 (Fibre Channel or SCSI) Cluster Configuration Guide

08 February, 2000

This document defines the supported HP NetServer LH4 configurations with the XP256 and Microsoft Cluster Server. These configurations minimize single points of failure (SPOF), provide maximum availability, and have been certified by Hewlett-Packard or Microsoft. This guide is prescriptive; it describes the configurations supported by HP. Any deviance to these configurations can result in an inoperative cluster or an operating cluster with degraded performance, hidden SPOFs, etc., and therefore will not be supported by HP.

## What's Defined in a Cluster

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- Cluster
- SPUs
- Local and Shared Storage
- Intra-cluster and Client LANs
- Shared Storage Cabling

## Cluster

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Type of SPUs	HP NetServer LH4 Each node must be the same model SPU, but may have different size main memory, cache, and CPUs clock speeds.
Number of nodes	2
Shared Storage	XP256 with FC or SCSI connections. See <a href="#">Shared Storage</a> below.
LANs:	
Client LAN	Any NIC that is HP and Microsoft approved. See <a href="#">Client LAN</a> below.
Intra-cluster (Heartbeat) LAN	HP D5013A with crossover cable. See <a href="#">Intra-cluster LAN</a> below.
Power source	Direct from power mains, power conditioner or uninterruptible power supply (UPS) using any power conditioner or UPS.
System software:	
Navigator version	L.16.05 or later
Operating System	Microsoft Windows NT Server 4.0, Enterprise Edition or later
Service pack	SP5 or later

## SPU

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Model	HP NetServer LH4
Clock speed	400, 450, 500, or 550 MHz
No. of CPUs	2 – 4
BIOS version	4.06.23PS or later
CPU cache	Any size
RAM	256 MB minimum. Must be HP.
No. of power supplies	3
Local storage	See <a href="#">Local Storage</a> below.
I/O slots:	P1 – P3 Shared storage controller P1 – P3 NetRAID-3Si local storage P4 – Client LAN P5 – Intra-cluster (Heartbeat) LAN All others – Any other plug-in cards.

## Storage

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### Local

Physical drive location	SPU internal drive bays or HP external drive cabinet (e.g., HP Rack Storage/12), any number.
Disk drives	Must be HP
Controller	<b>May use</b> embedded SCSI or NetRAID-3Si in PCI slot P1 otherwise any controller listed on the HP Tested Products List. <b>May not use</b> NetRAID-1, NetRAID-3, or NetRAID-1Si.
SCSI bus	Any HP cables that meet SCSI specifications and any SCSI bus speed

### Shared

<u>Host Bus Adapters</u>	<b>Fibre Channel HBA</b>	<b>SCSI HBA</b>
Model	D8602A	A5252B or Adaptec AHA2944UW
Bus Protocol	FC Public NL	Ultra Wide or Fast Wide
No. of HBAs/Server	1	1
Firmware	NA	N/A
BIOS	NA	2.11 (B.01.08)
Driver	2.00 or later Available at <a href="http://www.semiconductor.agilent.com/io/hhba5101.html">http://www.semiconductor.agilent.com/io/hhba5101.html</a>	SP5 bundle version
SPU I/O slot	P3 – P4	P3-P4
SCSI ID	NA	7 or 6
Registry Changes	I/O Timeout= 60 Seconds	I/O Timeout=60 seconds Queue Tag Count=8 (MAXTAGS=8)

### XP256 Disk Array

Microcode	43.12 (Direct Connect) 44.14 (All Configs)												
Open Volume Sizes (LDEVs)	<table><tr><th><b>VOL TYPE</b></th><th><b>SIZE</b></th><th><b>MAX EXTENDED LUN SIZE</b></th></tr><tr><td>Open 3*n</td><td>2.4G</td><td>2.4G x 36= 86.4G</td></tr><tr><td>Open 8*n</td><td>7.2G</td><td>7.2G x 36= 259.2G (where “n”= 1-36)</td></tr><tr><td>Open 9*n</td><td>7.3G</td><td>7.3G x 36= 262.8G</td></tr></table>	<b>VOL TYPE</b>	<b>SIZE</b>	<b>MAX EXTENDED LUN SIZE</b>	Open 3*n	2.4G	2.4G x 36= 86.4G	Open 8*n	7.2G	7.2G x 36= 259.2G (where “n”= 1-36)	Open 9*n	7.3G	7.3G x 36= 262.8G
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Disk Capacities	15GB, 36GB, 47GB												
RAID levels	1 & 5												
Max number of LUNs	8 shared LUNS per cluster												
Port Host Modes	08 (Fibre) 00 (SCSI)												
Port Fabric Modes	Using SVP (in MODIFY mode), go to SCSI PATH/FIBRE/TOPOLOGY. Turn FABRIC and LOOP to ON.												
<u>SCSI Cables</u>	Either of the 2 HP SCSI cables from the following list:												
2.5 meter	C2924A 68 pin HD Male to 68 pin HD Male												
10 meter	C2925A 68 pin HD Male to 68 pin HD Male												
<u>FC Cables</u>	Any 2 HP shortwave cables from the following list:												
2 meter	A3583A												
16 meter	A3531A												
50 meter	A3735A												
100 meter	A3736A												

## **Shared Storage Configurations**

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Point to Point	Direct Fibre Channel or SCSI connections. Each SCSI Port on XP256 has two available connection points (internal logical Y connection); one is cabled to Server #1 of the cluster, the other to Server #2 (see diag 1, page 5).
Fibre Channel Hub	
Model	A3724A HP-10 port Short Wave FC Hub A4839A HP-10 port Long Wave FC Hub
No. of hubs	1 per SPOF cluster
No. of clusters/hub	1 cluster on 1 hub
Fibre Channel Switch	
Model	A5223A (non-cascading) or A5224B (cascading) A5624A/AZ Brocade 2800 FC Switch
Fabric Support	FL Port (Turn EPL to OFF for desired ports)
No. of switches	1 per SPOF cluster, 2 per SPOFless cluster
No. of clusters/switch	SPOF: 1, SPOFless: 4 cluster nodes (See pg.5)

## LANs

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	<b><u>Intra-cluster (Heartbeat) LAN</u></b>	<b><u>Client LAN</u></b>
LAN connection	HP D5954A crossover cable or equivalent  The intra-cluster LAN may only be used for cluster node communication via a crossover cable. It may not be used for client communication.	Any LAN
NIC:		
Model	HP D5013A (10/100TX PCI)	Any that is on both the HP Tested Products List and the Microsoft Hardware Compatibility List.
Driver	3.27.00.0001 or later	Any driver <b>NOTE</b> If the NIC used is the same as the Intra-cluster LAN, then the Client LAN must use the same driver as the Intra-cluster LAN.
No. of NICs	1	1 minimum
SPU I/O slot	P5	P4

## Shared Storage Cabling

This part of the guide defines the allowable cabling configurations for clusters using the HP NetServer LH4 and the XP256. Only these cabling configurations and cables are supported.

### DIAGRAMS SHOWING THE SUPPORTED CONFIGURATIONS

